

May 5<sup>th</sup>, 2011

ECOWATER SYSTEMS LLC  
MARGARET BICKING  
1890 WOODLANE DR  
WOODBURY MN 55125

NORTHSTAR WATER CONDITIONING  
MARGARET BICKING  
1890 WOODLANE DRIVE  
WOODBURY MN 55125

Re: Description: WATER TREATMENT DEVICE - POE SOFTENER  
Manufacturer: NORTHSTAR WATER CONDITIONING  
Product Name: ULTRA COMPUTERIZED DEMAND AUTOMATIC WATER CONDITIONER  
Model Number(s): NSC25ED AND NST25ED  
Product File No: 20110136

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2016.

This approval supersedes the approval issued on September 22<sup>nd</sup>, 2006 under product file number 20060362.

This approval is contingent upon compliance with the following stipulation(s):

- This product has undergone sufficient testing to document the product's ability to reduce only those contaminants and/or substances as specified in this approval letter when the product is installed and maintained in strict accordance with the manufacturer's published instructions.
- Where the Department of Natural Resources (DNR) has jurisdiction, a written approval may be required prior to installation of this product in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 809, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Systems, P.O. Box 7921, Madison, WI 53707, telephone (608) 267-9787.
- If these approved devices are modified or additional assertions of function or performance are made, then this approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.
- These cation exchange water softeners shall be sized, installed, programmed and maintained such that wastewater volumes, total dissolved solids and chloride discharges are minimized.
- Operation of this/these device(s) and flow rates above the rated service flow rates indicated within this approval letter are not supported or acknowledged by this approval. The rated service flow rate(s) is/are the flow rate(s) at which this/these device(s) were tested.

Because the level of treatment obtained is a function of how long the water is in contact with the treatment media within this/these device(s), arbitrary increases in the flow rate(s), above the rated service flow rate(s) may compromise the quality of the treated water.

- These devices are not approved for the reduction of bacterial, colloidal or organically bound forms of iron. The water must be tested to speciate the iron present to determine if these devices can provide adequate treatment.

- The department does not recommend the use of water softeners for reducing dissolved iron concentrations in excess of 3.0 mg/l. This is because applying water softeners in this way sacrifices long-term water softener performance and efficiency. The use of water softeners for reducing dissolved iron concentrations exceeding 3.0 mg/l also generates excessive, and otherwise avoidable, quantities of chloride and dissolved solids which are subsequently discharged to ground and/or surface water supplies. Once present in ground and/or surface water supplies, chloride and dissolved solids tend to remain in the water resource and may travel great distances from the original point source. Presently, there are no economically viable methods to remove chloride and dissolved solids from water supplies because available technologies generate waste streams of their own, further concentrating the problem. It has been established by the Wisconsin Department of Natural Resources that chloride is chronically toxic to representative aquatic organisms, including forage and sport fish, at 395 mg/l, and acutely toxic at 757 mg/l.

Based on testing data submitted to and reviewed by the department, this approval recognizes that these plumbing products will reduce the concentration of contaminants as specified on pages 1 through 2 of this letter.

**WATER SOFTENING CAPABILITIES**  
**PRODUCT FILE NUMBER 20110136**  
**TABLE 1 OF 1**

Model Numbers	Capacity*						Max. Rated Service Flow Rate
Metered	Rating 1		Rating 2		Rating 3		
North Star	Grains	Pounds	Grains	Pounds	Grains	Pounds	gpm @ psig
NSC25ED	10,500	2.1	22,200	6.6	26,600	11.2	6.0 @ 9
NST25ED	10,500	2.1	22,200	6.6	26,600	11.2	6.0 @ 9

\* The softener capacity rating is based on grains of hardness, due to calcium and magnesium cations, removed (as calcium carbonate) while producing soft water between successive regenerations and is related to the pounds of salt required for each regeneration. The tests run to generate the hardness reduction data for table 1 were conducted in accordance with NSF Standard 44.

This device is also approved for the reduction of dissolved iron, up to a maximum concentration of 7.0 mg/l. The tests run to support the dissolved iron reduction claim were conducted by the Water Quality Association (WQA).

This device was tested under controlled laboratory, or field, conditions. The actual performance of this device for a specific end use installation will vary from the tested conditions based on local factors such as water pressure, water temperature and water chemistry.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Glen W. Schlueter  
Engineering Consultant-Plumbing Product Reviewer  
Bureau of Integrated Services  
Safety and Buildings Division  
Department of Commerce  
(608) 267-1401 **Phone**  
(608) 267-9566 **Fax**  
glen.schlueter@wi.gov **Email**  
8:00AM – 4:30PM CDT **Work Hours**  
GWS:gws